IN THE CLAIMS:

The following is a complete listing of the claims in this application, reflects all changes currently being made to the claims, and replaces all earlier versions and all earlier listings of the claims:

1. (Currently Amended) An ink jet recording method for ejecting ink, said method using an ink jet head substrate provided with a heat generating resistor, the heat generating resistor being coated with a protection film, wherein the ink is ejected by a pressure produced by generation of a bubble, the bubble being created by film boiling the ink by applying thermal energy to the ink through the protection film, the thermal energy being generated by a driving signal to the heat generating resistor, said method further comprising:

providing a recording mode in which the ink is ejected, the ink having a maximum temperature at the surface of the protection film, which is in contact with the ink, of not higher than 560°C.

2. (Previously Presented) A method according to Claim 1, wherein the maximum temperature applied to the ink is controlled by controlling a pulse width of the driving signal applied to the heat generating resistor.

3. (Previously Presented) A method according to Claim 1, wherein a temperature of the substrate is measured, the driving signal to the heat generating resistor being stopped when a discrimination is made that the maximum temperature may exceed 560°C, based on the temperature of the ink and the driving signal.

4. (Previously Presented) A method according to Claim 1, wherein the ink contains a chelate agent.

5. (Original) A method according to Claim 4, wherein the content of the chelate agent is not less than 50 weight ppm and not more than 20 weight %.

6. (Previously Presented) A method according to Claim 1, wherein said protection film comprises a plurality of layers, and the layer that comes into contact with the ink is an anti-cavitation film made of amorphous alloy comprising Ta.

7. (Currently Amended) A method according to Claim 6, wherein the amorphous alloy comprises one or more metal materials selected from [[a]] the group consisting of Fe, Cr, Re, Ge and Ni.

8. (Original) A method according to Claim 7, wherein the amorphous alloy comprises Ta, Fe, Cr and Ni, and a content of Ta is not more than 30 weight % on the basis of the total weight of the amorphous alloy.

9. (Currently Amended) An ink jet head substrate comprising a heat generating resistor, a protection film with which said heat generating resistor is coated, wherein heat generated by said heat generating resistor is applied to ink through said protection film to eject the ink,

wherein a maximum temperature at a surface where said protection film comes into contact with the ink is not higher than 560°C during driving of said heat generating resistor.

10. (Previously Presented) A substrate according to Claim 9, wherein said protection film comprises a plurality of layers, and the layer that comes into contact with the ink is an anti-cavitation film made of amorphous alloy comprising Ta.

11. (Currently Presented) A substrate according to Claim 10, wherein the amorphous alloy comprises one or more metal materials selected from [[a]] the group consisting of Fe, Cr, Re, Ge and Ni.

12. (Original) A substrate according to Claim 11, wherein the amorphous alloy comprises Ta, Fe, Cr and Ni, and a content of Ta is not more than 30 weight % on the basis of the total weight of the amorphous alloy.

13. (Currently Amended) An ink jet head comprising an ink jet head substrate including a heat generating resistor, and a protection film with which said heat generating resistor is coated, wherein heat generated by said heat generating resistor is applied to ink through said protection film to create a bubble in the ink, ~~therein~~ to eject the ink by a pressure caused by the creation of the bubble,

wherein a maximum temperature at a surface where said protection film comes into contact with the ink is not higher than 560°C during driving of said heat generating resistor.

14. (Previously Presented) An ink jet head according to Claim 13, wherein the ink contains a chelate agent.

15. (Original) An ink jet head according to Claim 14, wherein the content of the chelate agent is not less than 50 weight ppm and not more than 20 weight %.

16. (Previously Presented) An ink jet head according to Claim 13, wherein said protection film comprises a plurality of layers, and the layer that comes into contact with the ink is an anti-cavitation film made of amorphous alloy comprising Ta.

17. (Currently Amended) An ink jet head according to Claim 16, wherein the amorphous alloy comprises one or more metal materials selected from [[a]] the group consisting of Fe, Cr, Re, Ge and Ni.

18. (Original) An ink jet head according to Claim 17, wherein the amorphous alloy comprises Ta, Fe, Cr and Ni, and a content of Ta is not more than 30 weight % on the basis of the total weight of the amorphous alloy.

19. (Currently Amended) An ink jet apparatus which includes an ink jet head comprising an ink jet head substrate, said ink jet head substrate including a heat generating resistor, a protection film with which said heat generating resistor is coated, wherein heat generated by said heat generating resistor is applied to ink through said protection film to create a bubble in the ink, ~~therein~~ to eject the ink by a pressure caused by the creation of the bubble,

wherein a driving signal control means is provided for making a maximum temperature at a surface of said protection film that comes into contact with the ink not higher than 560°C during driving of said heat generating resistor.

20. (Previously Presented) An apparatus according to Claim 19, wherein said driving signal control means controls a pulse width of a driving signal applied to said heat generating resistor to control the maximum temperature applied to the ink.

21. (Previously Presented) An apparatus according to Claim 19, wherein said ink jet head substrate includes a temperature detecting element for measuring a temperature of said substrate, and wherein the driving signal to the heat generating resistor is stopped when a discrimination is made that the maximum temperature may exceed 560°C, based on the temperature of the ink and the driving signal.

22. (Previously Presented) An apparatus according to Claim 21, wherein the ink contains a chelate agent.

23. (Original) An apparatus according to Claim 22, wherein the content of the chelate agent is not less than 50 weight ppm and not more than 20 weight %.

24. (Previously Presented) An apparatus according to Claim 21, wherein said protection film comprises a plurality of layers, and the layer that comes into contact with the ink is an anti-cavitation film made of amorphous alloy comprising Ta.

25. (Currently Amended) An apparatus according to Claim 24, wherein the amorphous alloy comprises one or more metal materials selected from [[a]] the group consisting of Fe, Cr, Re, Ge and Ni.

26. (Original) An apparatus according to Claim 25, wherein the amorphous alloy comprises Ta, Fe, Cr and Ni, and a content of Ta is not more than 30 weight % on the basis of the total weight of the amorphous alloy.

27. (New) A method according to Claim 1, wherein the heat generating resistor is made of TaSiN.

28. (New) A substrate according to Claim 9, wherein said heat generating resistor is made of TaSiN.

29. (New) An ink jet head according to Claim 13, wherein said heat generating resistor is made of TaSiN.

30. (New) An apparatus according to Claim 19, wherein said heat generating resistor is made of TaSiN.

31. (New) A method according to Claim 1, wherein the ink contains pigment.

32. (New) A substrate according to Claim 9, wherein the ink contains pigment.

33. (New) An ink jet head according to Claim 13, wherein the ink contains pigment.

34. (New) An apparatus according to Claim 19, wherein the ink contains pigment.